

REMARKS

Claims 37, 46, and 51 have been amended. No new matter has been added. Thus, claims 36-43 and 45-54 are pending in the present application.

Claims 36-37, 39-43, 45, 46, and 48-52 were rejected under 35 U.S.C. § 102(e) as being anticipated by Yang (U.S. Patent No. 6,040,603). The Examiner's rejections of the remaining claims are respectfully traversed.

Yang is directed to controlling a breakover voltage in an electrostatic discharge protection device. Yang describes forming source and drain regions 305, 307, each having a lightly doped drain region, using ion implants. Next, a first electrostatic discharge implant 309 is formed such that the electrostatic discharge implant 309 will wholly encompass the source region 305, the drain region 307, and the lightly doped drain regions. A second electrostatic discharge implant 311, which has an impurity type opposite to that of the source and drain regions 305, 307 and the first electrostatic discharge implant 309, is formed underneath the first electrostatic discharge implant 309. See Yang, col. 2, ll. 44-67 and Figure 3. As disclosed by Yang, the breakover voltage of the electrostatic discharge protection device is determined by a distance (designated "d" in Figure 3 of Yang) between the first electrostatic discharge implant 309 and the second electrostatic discharge implant 311. See Yang, col. 3, ll. 3-7, and Figure 3.

Applicant respectfully submits that the method disclosed in the present invention is not anticipated by Yang for at least the following reasons. Pursuant to the proposed amendments, Applicant describes and claims in independent claims 37, 46, and 51, among other things, selecting a first distance from a first doped plug to a first boundary of the first doped well to provide approximately a desired breakover voltage between the first doped plug and the first doped region. For example, a first n-plug 104 may be positioned a distance "x" from a first edge

122 of a first n-well 106. The breakover voltage is therefore tunable by adjusting the distance "x." See Patent Application, pg. 14, ll. 19-22 and Figure 5.

In the Office Action, the Examiner argues that the breakover voltage of the device described in Yang depends upon the distance of the LDD regions 305, 307 and the well regions 309. However, Yang does not teach or suggest selecting a first distance from a first doped plug to a first boundary of the first doped well to provide approximately a desired breakover voltage between the first doped plug and the first doped region. Thus, for at least the aforementioned reasons, Applicant respectfully submits that independent claims 37, 46, and 51, and all claims depending therefrom, are not anticipated by Yang and request that the Examiner's rejections under 35 U.S.C. § 102(e) of independent claims 37, 46, 51, and all claims depending therefrom be withdrawn.

Moreover, it is respectfully submitted that independent claims 37, 46, 51, and all claims depending therefrom are not obvious in view of Yang. As discussed above, Yang does not teach or suggest selecting a first distance from a first doped plug to a first boundary of the first doped well to provide approximately a desired breakover voltage between the first doped plug and the first doped region. There is also no suggestion or motivation in Yang for modifying the prior art to arrive at Applicant's claimed invention. In fact, Yang teaches away from the present invention. Yang teaches that the electrostatic discharge protection device requires an additional implant, i.e. a second electrostatic discharge implant 311. Yang teaches that forming the second electrostatic discharge implant 311 is necessary to adequately control a snap-back voltage. See Yang, col. 1, ll. 62-64. Yang also teaches that the second electrostatic discharge implant 311 is formed such that the breakover voltage is determined by the distance between the first

electrostatic discharge implant 309 and the second electrostatic discharge implant 311, *i.e.* Yang teaches selecting the distance "d" to determine the breakover voltage.

In the Office Action, claim 54 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yang, as applied to claim 51 above, and further in view of Pilling et al. (U.S. Patent No. 5,838,624). The Examiner's rejections are respectfully traversed.

The Examiner relies on Pilling to teach an anti-fuse network that is susceptible to damage from electrostatic discharge. However, Pilling does not remedy the fundamental deficiencies in Yang, as described above. Thus, for at least the aforementioned reasons, Applicant respectfully submits that claim 54 is not anticipated by Yang in view of Pilling and request that the Examiner's rejection be withdrawn.

Claims 38, 47, and 53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yang as applied to claims 37, 44, and 51 above, and further in view of Matsukawa (U.S. Patent No. 5,182,227). The Examiner's rejections are respectfully traversed.

The Examiner relies on Matsukawa to teach using a LOCOS oxide to isolate electrical components on a substrate. However, Matsukawa does not remedy the fundamental deficiencies in Yang, as described above. In particular, Matsukawa does not suggest that a LOCOS structure (or an isolation trench structure) can be used as one component of an electrostatic discharge protection device. Thus, there is no suggestion in either Matsukawa or Yang to alter Yang's transistor using a LOCOS structure of Matsukawa to yield the electrostatic discharge protection device formed by the claimed method. Thus, for at least the aforementioned reasons, Applicant respectfully submits that claims 47 and 53 are not anticipated by Yang in view of Matsukawa and request that the Examiner's rejection be withdrawn.

FAX RECEIVED

NO. 253

P11

AUG 25 2003

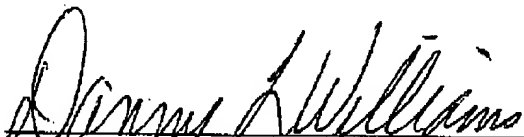
OFFICIAL

GROUP 2800

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (713) 934-4060 to discuss the steps necessary for placing the application in condition for allowance.

Respectfully submitted,

Date: August 25, 2003


Danny L. Williams, Reg. No. 31,892
WILLIAMS, MORGAN & AMERSON, P.C.
10333 Richmond Avenue, Suite 1100
Houston, TX 77042
(713) 934-7000
(713) 934-7011 (facsimile)

ATTORNEY FOR APPLICANT